General Chemistry 1 Foundation Exam Review

1. Solve the following conversions

a. 1200 dm ➔ mm

b. 14 nL ➔ pL

c. 150 Gm ➔ Mm

d. 100 km^3 ➔ mm^3

e. 742 Gm^3 ➔ Gallons

f. 205,924 g ➔ pounds

g. 9.75 ks ➔ ms

h. 74 L ➔ cm^3

2. Determine which of the following properties are intensive/extensive and physical/chemical properties

a. Color

b. Combustibility

c. Density

d. Volume

e. Odor

f. Malleability

g. Tendency to Corrode

h. Weight

i. Melting Point

j. Boiling Point

3. What is the molarity of a solution when 482 g of magnesium chloride is dissolved in 3583 mL of water? (Assume the volume of solution doesn't change)

4. How many grams of sodium chloride are in an 8M NaCl solution with a volume of 472 mL?

5. What is the molarity of the potassium ion when 42 g of K_2SO_4 are dissolved in 100 mL of solvent? (Assume the volume of solution doesn't change)

6. How many mL of solution are required to make a 10M solution of sodium phosphate when you are given 75 g of sodium phosphate?

7. How many sodium ions are in a sample of 73 mg of sodium oxide?

8.

a. What mass of K_2O, in grams, is produced when 25 g of potassium is reacted with 20 grams of calcium oxide via the chemical reaction below?

$$K + CaO \rightarrow Ca + K_2O$$

b. A gen chem 1 student successfully performs the experiment above and collects 23 g of K_2O product. What was the percent yield of their reaction?

9. What is the mass of 9.3E25 atoms of chlorine in grams?

10. How many moles of NaCl are in a 1.5 kg sample of NaCl?

11. How many ions of silver are in 591 g of silver sulfite?

12. How many oxygen atoms are in 374 g of ammonium nitrite

13. $2\ Na(s) + Cl_2(g) \rightarrow 2\ NaCl(s)$

a. 6.0 mol of Na and 4.0 mol of Cl_2 are mixed. How many grams of NaCl can be made from this reaction?

b. What is the limiting reactant?

c. What is the percent yield if only 300 grams of NaCl are collected?

14. $Cu(s) + S(s) \rightarrow Cu_2S(s)$

a. What is the oxidation number of Cu in Cu_2S

b. If 80.00 grams of copper is reacted with 25.00 grams of sulfur, how many grams of product can be produced? What is limiting reactant?

c. How many grams of the excess reactant are left over at the end of the reaction?

15. For each of the following compounds give the name or formula

a. Cu_2S
b. Ferric sellenide
c. Ammonium Bromide
d. $Mo(C_2H_3O_2)_4$
e. WO_2
f. Osmium tetroxide
g. Sodium cyanide
h. $Pu(OH)_3$
i. Silver Arsenide
j. Zinc bicarbonate
k. Ammonium persulfate

l. $Ba(OH)_2$
m. CO
n. XeF_6
o. $CaRn_2$
p. Arsenic pentafluoride
q. $Cr(CrO_4)_3$
r. Manganese (VII) oxide
s. Cuprous Polonide
t. CH_4
u. H_2O
v. Sulfuric Acid
w. Perchloric Acid
x. Ozone
y. N_2O_4
z. Calcium biphosphate

16. Write out the molecular, ionic, and net ionic equation for the reaction involving copper(II) chloride and silver acetate.

17. Write out the molecular, ionic, and net ionic equation for the reaction involving sodium phosphate and nickel(II) perchlorate.

18. Determine the number of significant figures in the following problems.

a. 0.103

b. 1670

c. 0.0000003450

d. 3048

e. 3048.

f. 58,370.

19. Determine the percentage composition of Carbon atoms in pentanol ($C_5H_{12}O$).

20. Determine the percentage composition of Hydrogen in the fatty acid $CH_3(CH_2)_{24}COOH$.